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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/697,524	10/26/2000	Dennis Brandon	23456	4489

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DINSMORE & SHOHL LLP  
414 UNION STREET  
SUITE 1100  
NASHVILLE, TN 37219

EXAMINER

GONZALEZ, JULIO C

ART UNIT

PAPER NUMBER

2834

DATE MAILED: 06/19/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)
	09/697,524	BRANDON ET AL.
	Examiner	Art Unit
	Julio C. Gonzalez	2834

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  - Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1)  Responsive to communication(s) filed on 10 May 2002 .

2a)  This action is **FINAL**.                    2b)  This action is non-final.

3)  Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## **Disposition of Claims**

- 4)  Claim(s) 1-27 is/are pending in the application.

4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5)  Claim(s) \_\_\_\_\_ is/are allowed.

6)  Claim(s) 1-27 is/are rejected.

7)  Claim(s) \_\_\_\_\_ is/are objected to.

8)  Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9)  The specification is objected to by the Examiner.

10)  The drawing(s) filed on 26 October 2000 is/are: a)  accepted or b)  objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)  The proposed drawing correction filed on \_\_\_\_\_ is: a)  approved b)  disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)  The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13)  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)  All b)  Some \* c)  None of:

  1.  Certified copies of the priority documents have been received.
  2.  Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3.  Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

14)  Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a)  The translation of the foreign language provisional application has been received.

15)  Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1)  Notice of References Cited (PTO-892) 4)  Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_  
2)  Notice of Draftsperson's Patent Drawing Review (PTO-948) 5)  Notice of Informal Patent Application (PTO-152)  
3)  Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2. 6)  Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Drawings***

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the methods of controlling the apparatus as disclosed in claims 10-20 (e.g. flowchart) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 5, 6, 12, 13, 15-20, 27 and 23 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 5, the engine is disclosed to be running where it is most efficient. When is the engine most efficient? What determines when the engine is most efficient?

✓ How is determined that the engine is most efficient?

✓ In claim 6, what is meant by the motors regenerating back to the engine? What are the motors regenerating? When and what factors determine that the motors should regenerate?

✓ In claim 23, an inverter is disclosed to provide power. Accordingly, inverters are used to convert AC to DC or DC to AC electricity. Is the inverter functioning as a battery (power supply)?

✓ Claims 12, 13, 15-20 disclosed methods steps that depend improperly on apparatus claims. The method steps do not affect the physical limitations of the apparatus claims since such method may be changed depending on the need of the vehicle/user. Also, it is a matter of design choice since a computer/microcontroller may be programmed to obtain any desired results. Also, such procedure of method are not shown in the drawings.

✓ Moreover, in claim 13, the error signal is disclosed by a difference of signals, but it is also disclosed in the claim that the error signal is a sum of signals. Which one is it? Sum or difference of signals?

- ✓ { In claim 12, an encoder is disclosed? Is such encoder a rotational sensor? How the encoder monitors the rotor?
- ✓ { In claim 27, what is meant by the inverter output being inhibiting when the mower is moving? Is the output power been held back? Or not?

In order to advance prosecution in the merits, the Prior Art will be applied as best understood by the examiner.

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 3, 6, 7, 21 and 23 are rejected under 35 U.S.C. 102(b) as being anticipated by Kawamura.

Kawamura discloses a first and second wheel 9 with a first and second motor 8 mechanically connected, a generator 2, an engine 1, a battery 11, an inverter 4 (see figure 1).

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 5, 8, 9, 22 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawamura in view of Deguchi et al.

Kawamura discloses a first and second wheel 9 with a first and second motor 8 mechanically connected, a generator 2, an engine 1, a battery 11, an inverter 4 (see figure 1).

However, Kawamura does not disclose having a reduction gear between the wheels and the motor.

On the other hand, Deguchi et al discloses for the purpose of improving the efficiency of fuel consumption, a gearbox 6 between a motor 4 and a wheel 8 (see figure 1).

Kawamura and Deguchi et al disclose inherently using a belt system between the engine and the generator since it is well known in the art to use belts for linking driving devices in vehicles.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to design a drive system as disclosed by Kawamura and to modify the invention by using low gear reduction for the purpose of improving the efficiency of fuel consumption as disclosed by Deguchi et al.

7. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kawamura and Deguchi et al as applied to claim 23 above, and further in view of Davis.

The combined drive system discloses all of the limitations above. However, the combined drive system does not disclose using an H-bridge.

On the other hand, Davis discloses for the purpose of maintaining a constant amplitude output to compensate for load variations thus improving the output power of generators, a H-bridge 60 and a low pass filter 71 (see figure 1).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to design the combined drive system as disclosed above and to modify the invention by using a H-bridge for the purpose of maintaining a constant amplitude output to compensate for load variations thus improving the output power of generators as disclosed by Davis.

8. Claims 2 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawamura and Deguchi et al as applied to claim 1 and 3 above, and further in view of Arimitsu.

The combined drive system discloses all of the limitations above. However, the combined drive system does not disclose using reluctance motor.

On the other hand Arimitsu discloses for the purpose of reducing current loss, a switch reluctance motor 3. Also, it is disclosed that the two motors may be rotated independently (column 7, lines 3-5).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to design the combined drive system as disclosed above and to modify the invention by using a reluctance motor for the purpose of reducing current loss as disclosed by Arimitsu.

9. Claims 10-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawamura and Deguchi et al as applied to claim 1 above, and further in view of Krohling et al.

The combined drive system discloses all of the limitations above. However, the combined drive system does not disclose controlling the generator through its excitation.

Although, the method steps disclosed in the claims are improper due the dependency on an apparatus claims, certain limitations may be taken into consideration.

On the other hand, Krohling et al discloses for the purpose of reducing overloading and improving torque output, a system in which the generator is controlled by a speed signal and being compared to a set signal and an error signal is produced by comparing the difference in the signals (column 4, lines 59-64 & abstract). Also, the motors may be controlled the same fashion by having a reference signal and using a variable signal (column 7, lines 40-45).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to design the combined drive system as disclosed above and to modify the invention by controlling in a certain manner the generator for the purpose of reducing overloading and improving torque output as disclosed by Krohling et al.

10. Claims 25 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawamura and Davis as applied to claim 24 above, and further in view of ordinary skill in the art.

The combined drive system discloses all of the limitations above. However, the combined drive system does not disclose the specifications of the inverter output.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to obtaining an output of a synchronous 110/120 VAC, since it has been held that discovering the optimum value of result effective variable involves only routine skill in the art. *In re Boesch*, 617 F. 2d 272, 205 USPQ 215 (CCPA 1980).

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Julio C. Gonzalez whose telephone number is (703) 305-1563. The examiner can normally be reached on M-F (8AM-5PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nestor Ramirez can be reached on (703) 308-1371. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 305-1341 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.



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Jcg

June 12, 2002